



Mediterranean humid periods and sapropel formation during the last four climatic cycles

T. Melki (1), F. Jorissen(2), N. Kallel(1), L. Labeyrie(3), J.C. Duplessy(3), M. Fontugne(3)

(1)University of Sfax, Department of Geology, BP :802, Route de Soukra, Sfax 3018, Tunisia,
(2)University of Angers, Lab d'étude des Bio-Indicateurs Actuels et Fossiles (BIAF) , UPRES EA, 49045 Angers, France, (3)CNRS-CEA, Lab. Des Sciences du Climat et de l'Environnement (LSCE), 91198 Gif-sur-Yvette, France

We have analyzed the benthic foraminiferal fauna at high-resolution along the core MD84-641 (33°02' N ; 33°38' E) recovered in the Eastern Mediterranean Sea and covering the last four climatic cycles. For each sapropel, the succession of benthic foraminifera assemblages displays that the decrease in the oxygen content of the eastern Mediterranean deep water was gradual. This contrasts with the abrupt decrease of the Sea Surface Salinity (SSS) associated with sapropel formation. It is now well established that the organic matter preservation on the bottom of the eastern Mediterranean Sea and sapropel formation were linked to the slowing in the deep water circulation of the Mediterranean Sea. This can only be possible when the Mediterranean Sea received an enhanced freshwater supply that was able to equilibrate the water loss by evaporation transforming the Mediterranean Sea into a non concentration basin. However, hydrological conditions responsible for organic matter preservation events, seems to be different from one sapropel to another. This is indicated by differences in the duration and the installation rhythm of anoxic conditions. Benthic foraminifera did not disappeared completely during sapropels S10, S9, and S4 suggesting that anoxia was never reached during these episodes. On the other hand, anoxia occurred for short duration during cold sapropels S8 and S6. This suggests that climatic conditions con-
ducting to the wet epochs, associated with sapropels, were not identical for all the eastern Mediterranean sapropels.